

## PRODUCT / PROCESS CHANGE INFORMATION

### 1. PCI basic data

1.1 Company		STMicroelectronics International N.V
1.2 PCI No.		AMS/21/13085
1.3 Title of PCI		Change of EWS test platform from C600 to DOT 100 (on V654).
1.4 Product Category		See Products List
1.5 Issue date		2021-10-27

### 2. PCI Team

2.1 Contact supplier	
2.1.1 Name	ROBERTSON HEATHER
2.1.2 Phone	+1 8475853058
2.1.3 Email	heather.robertson@st.com
2.2 Change responsibility	
2.2.1 Product Manager	Andrea Mario ONETTI
2.1.2 Marketing Manager	Simone FERRI
2.1.3 Quality Manager	Michele CALDERONI

### 3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Equipment (EWS-FT)	New tester, or prober option or major HW changes (ex: computer), brand or model (Unknown type)	ST CATANIA

### 4. Description of change

	Old	New
4.1 Description	Tester Platform: SPEA C600.	Tester Platform: SPEA DOT 100.
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No Impact	

### 5. Reason / motivation for change

5.1 Motivation	The C600 is an old model, no longer well supported by the vendor. Additionally, the DOT 100 will significantly increase the EWS throughput capability.
5.2 Customer Benefit	SERVICE CONTINUITY

### 6. Marking of parts / traceability of change

6.1 Description	Trace Code (internal Traceability)
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### 7. Timing / schedule

7.1 Date of qualification results	2021-10-21
7.2 Intended start of delivery	2021-12-01
7.3 Qualification sample available?	Upon Request

### 8. Qualification / Validation

8.1 Description	13085 VA654AC5_porting_C600_DOT_report_comp_vr6.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2021-10-27

### 9. Attachments (additional documentations)

13085 Public product.pdf
13085 VA654AC5_porting_C600_DOT_report_comp_vr6.pdf

10. Affected parts		
10. 1 Current		10.2 New (if applicable)
10.1.1 Customer Part No	10.1.2 Supplier Part No	10.1.2 Supplier Part No
	A3G4250DTR	
	I3G4250DTR	

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## Public Products List

Public Products are off the shelf products. They are not dedicated to specific customers, they are available through ST Sales team, or Distributors, and visible on ST.com

**PCI Title :** Change of EWS test platform from C600 to DOT 100 (on V654).

**PCI Reference :** AMS/21/13085

**Subject :** Public Products List

Dear Customer,

Please find below the Standard Public Products List impacted by the change.

I3G4250DTR	A3G4250DTR	
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**A3G4250D / I3G4250D / A1G4250D**

**ASIC EWS porting summary report  
from SPEA C600 to SPEA DOT100**

D. Lombardo

M. Morezzi

Oct 2021

ST Restricted

# Reason of the change

- SPEA C600 are old testers
- Due to equipment obsolescence, ST is moving the ASIC used in the products A3G4250D / I3G4250D / A1G4250D (internal line code VB654) from the EWS\* test platform based on SPEA C600 to the new one based on SPEA DOT100.
- The tester DOT100 has been in production at ST for several years
- With the new equipment there is an important increase of capacity
- Traceability of the change will be done with QA number of the first shipment
- **The following slides show that the electrical results using the two tester models are equivalent**

\*EWS: Electrical Wafer Sorting

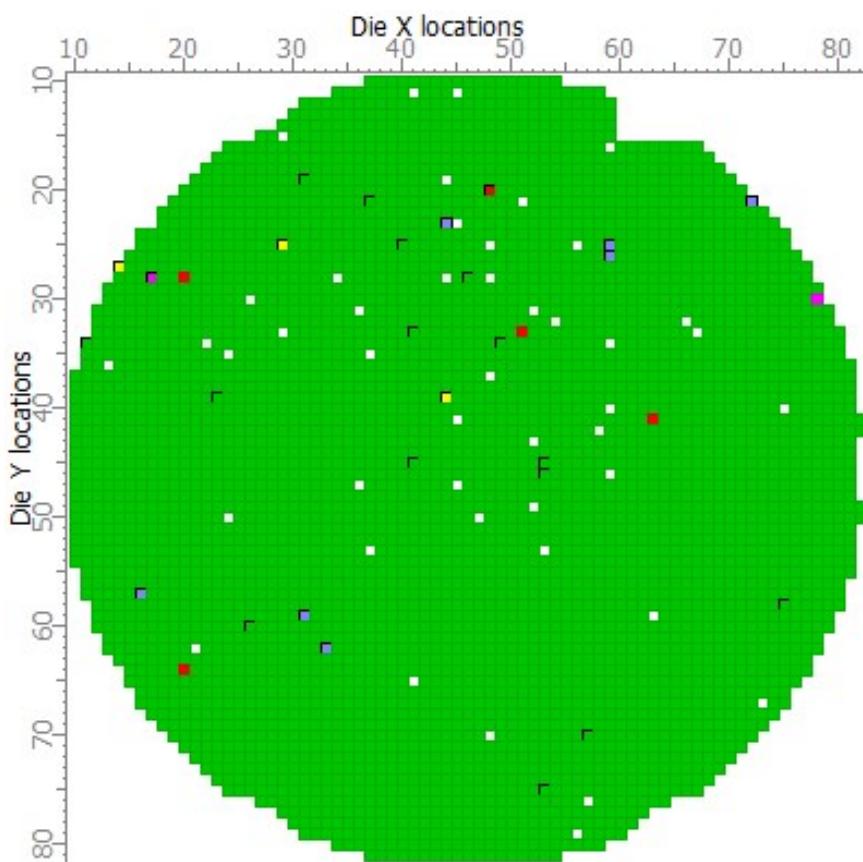
# 5M/1E change analysis

Change	Element	Control	Remarks
EWS ASIC testing platform change	<b>Machine</b>	Old tester : C600 from SPEA	New tester: DOT100 from SPEA
	<b>Man</b>	EWS plant and operators: ST Catania	No change
	<b>Material</b>	Bill of material (BOM)	No change
	<b>Measurement</b>	The testing program is simply transferred from the old to the new tester	No change
	<b>Method</b>	The testing flow is unchanged: EWS1 @ambient + EWS2 @ambient + EWS3 @cold	No change
	<b>Environment</b>	ST plant in Catania is fully qualified for automotive production	No change

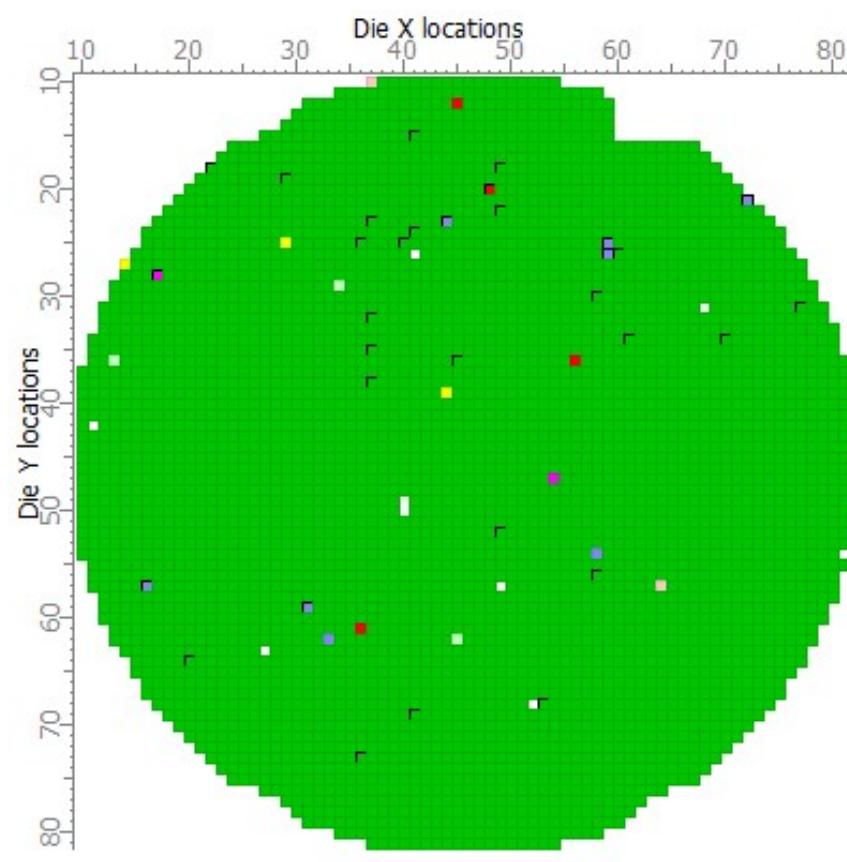
- **Purpose:**
  - To compare the ASIC (V654) EWS results when moving from C600 to DOT100
- **Wafer tested:**
  - Lot G126562, wafer #10
  - Gross number of dice on wafer: 4174
- **Testing flow:**
  - EWS1 ( $T_{amb}$ ) → EWS2 ( $T_{amb}$ ) → EWS3 ( $T_{cold}$  @-40°C)
- **Main setting parameters:**
  - $V_{ddMin} = 1.71V$
  - $V_{ddCal} = 2.5V$
  - $V_{ddMax} = 3.6V$
- C600 tests list is 100% covered by the new test program on DOT100

# EWS1 map

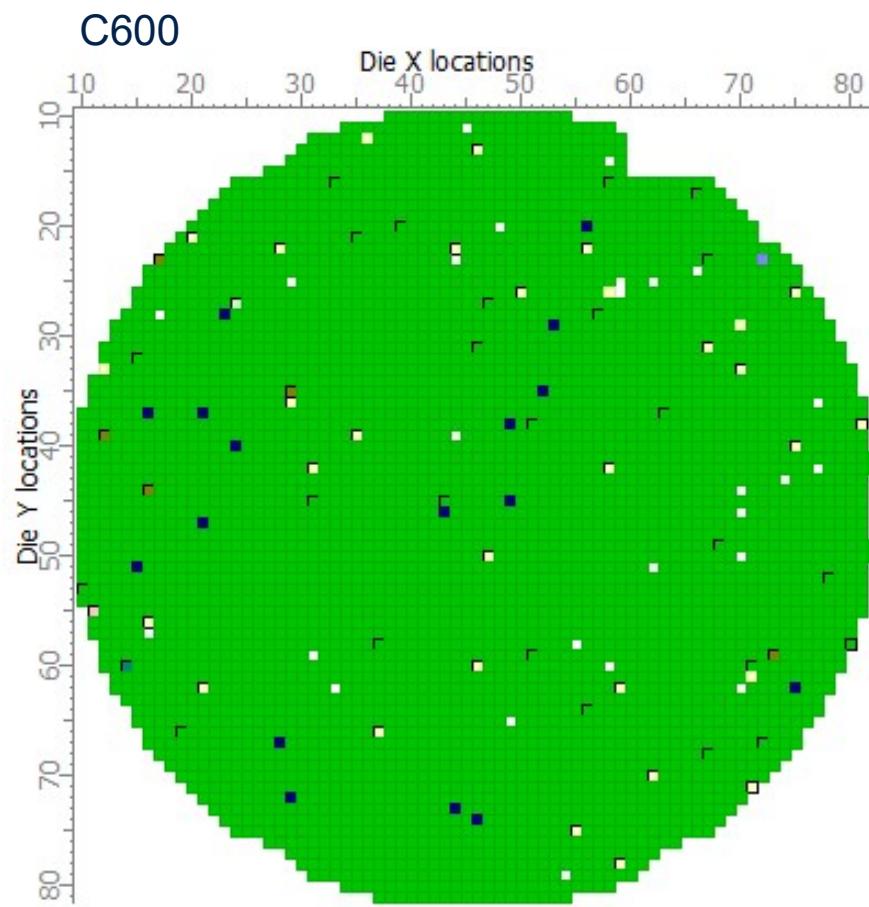
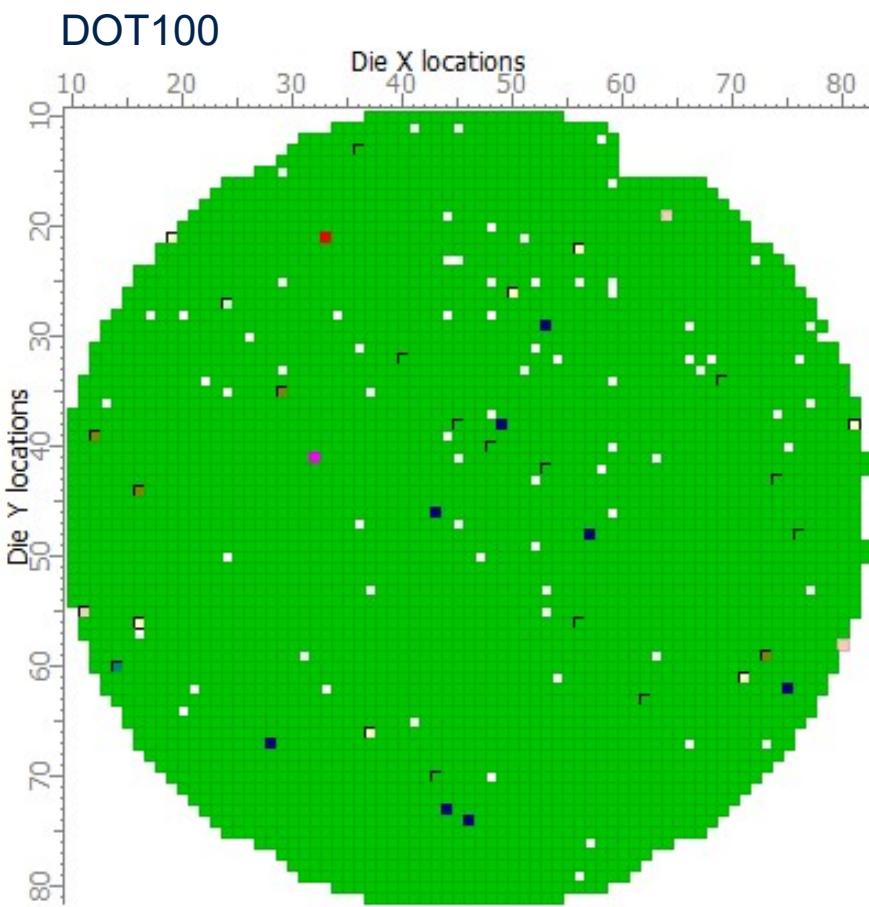
DOT100



C600

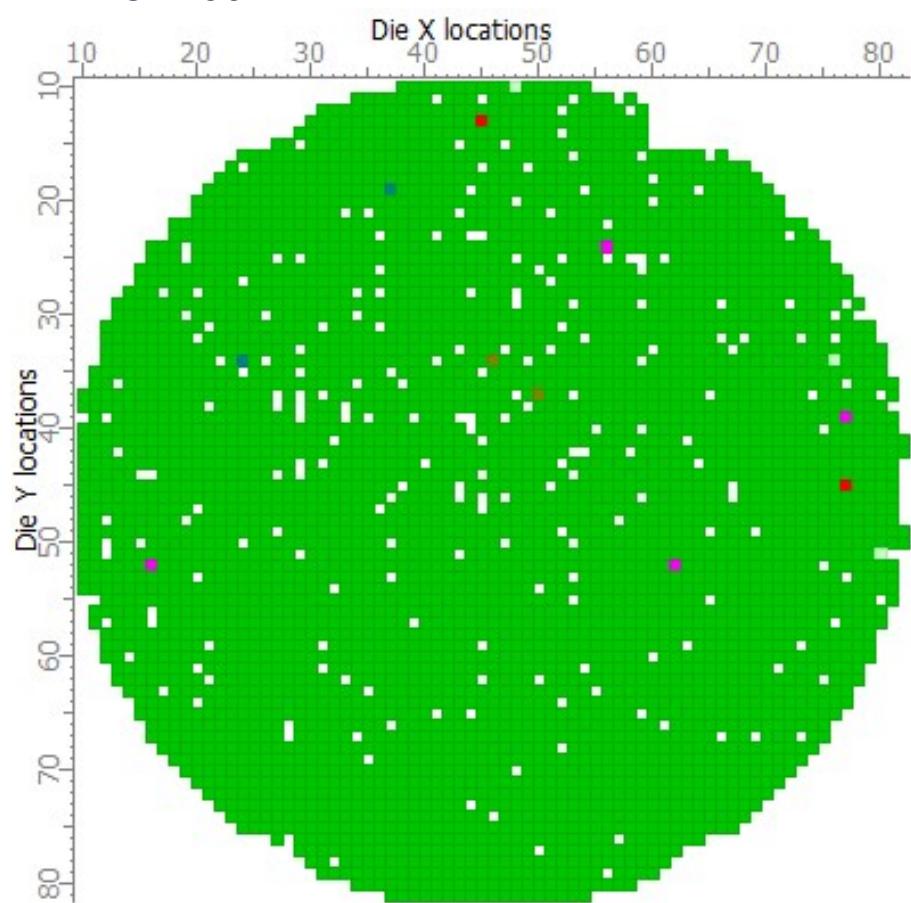


# EWS2 map

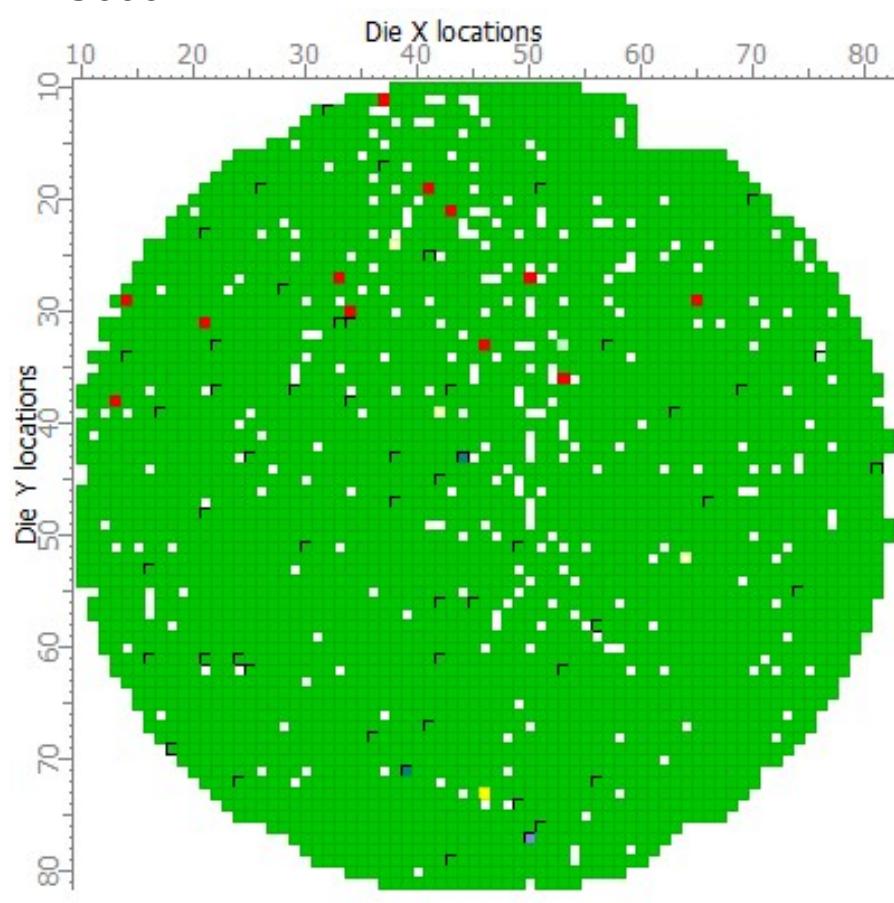


# EWS3 map

DOT100



C600



# FAIL to PASS

- EWS1

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
1	23	1	0.02%
1	9	1	0.02%
1	7	2	0.05%
1	12	2	0.05%
1	3	3	0.07%
Total	-	9	0.22%

SB	Bin name
1	<b>Good</b>
3	I2C-SPI_Functional
6	Short
7	Inp/Out Resistance
9	Erase Flash
12	Thr Verify
23	Supply Current

- EWS2

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
1	30	2	0.05%
1	21	10	0.24%
1	23	18	0.44%
Total	-	30	0.73%

SB	Bin name
1	<b>Good</b>
9	Erase
13	Current_trim
14	4.1KFrequency_Trim
17	VGA_trim
18	Volt_ref
19	Ews_gk11
20	Ews_gk10
21	Temp_Sens_Trim
23	Supply Current
30	Write_reg_flash

- EWS3

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
1	20	1	0.03%
1	4	1	0.03%
1	18	2	0.05%
1	13	3	0.08%
1	3	9	0.24%
Total	-	16	0.43%

SB	Bin name
1	<b>Good</b>
3	I2C-SPI
4	Leakages
8	Scan
13	Current_trim
18	Volt_ref
20	EWS_GK10
23	Supply

All dies failed on C600, but passed on DOT, have been retested on the C600 after a contact checking with an ALL PASS result confirming a poor contact performance of the equipment / setup based on C600

# PASS TO FAIL

- EWS1

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
9	1	1	0.02%
3	1	4	0.10%
Total	-	5	0.12%

- EWS2

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
13	1	1	0.02%
9	1	1	0.02%
23	1	1	0.02%
21	1	1	0.02%
18	1	2	0.05%
Total	-	6	0.15%

- EWS3

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
23	1	2	0.05%
18	1	2	0.05%
20	1	2	0.05%
3	1	2	0.05%
8	1	4	0.11%
Total	-	12	0.32%

# Conclusions

- The EWS results of a complete wafer of V654 (ASIC die code used in A3G4250D, I3G4250D, and A1G4250D) were compared after testing on current and new equipment
- The wafer maps, after contact verification and re-probing on the old C600, proved to be perfectly correlated
- Overall, the wafer testing solution implemented on the new DOT100, besides offering a better contact stability, is also providing a higher throughput capability
- The wafer testing program is confirmed to be validated and qualified on the new DOT100 platform

# Thank you

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